Separation of late peaks in GC

One of the most frequently asked questions in GC is how to improve the separation of late peaks in GC. Most of the time the solution is simple, as noted by some general procedures you can follow:

- Increase the final temperature of the program or the ramp speed: the peaks that elute at a low isothermal level or with a slow ramp tend to be wider. Take advantage and fully use the maximum column temperature (up to 10° C below the limit indicated by the manufacturer, so as not to jeopardize the column's life). If applicable, choose a column type «HT» or «XT».

- Increase the flow: pay attention to the peaks that elute earlier, which may lose resolution. One solution, if the GC system allows it, is flow programming, starting the separation at a lower flow and then gradually increasing it.

- Use a column with less film thickness: a thicker film offers greater retention for all compounds, and even more so for the "late" peaks. Using a thinner film allows a substantial reduction in the retention time and temperatures at which the compounds elute. It should also be noted that a thinner film shows less phase "bleeding".

- Increase the injector temperature: the peaks that come out later are less volatile and require higher temperatures to elute. Increasing the injector temperature provides a more effective vaporization of these molecules and the transfer to the column occurs in a more homogeneous way, reducing its dispersion and therefore, the peak width and the retention time.

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